

REMARKS

Claims 1, 3-17, 19, 39-45 and 47 are now pending in the application. Claims 1-19 and 39-47 stand rejected. Claims 2, 18, 20-38, and 46 have been previously withdrawn from consideration, and are canceled herein. Claims 1, 12, 19, and 39 have been amended herein, and Claims 48-52 are new. Support for the amendments and new claims can be found throughout the application, drawings and claims as originally filed and, as such, no new matter has been presented. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments, remarks and new claims contained herein.

REJECTION UNDER 35 U.S.C. § 112

Claim 18 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicants regard as the invention. Claim 18 stands rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. Applicants have canceled Claim 18, and thus, these rejections have been rendered moot. Reconsideration and withdrawal of these rejections are respectfully requested.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-17 and 39-47 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hynes et al. (U.S. Pat. No. 6,117,143; hereinafter "Hynes"). This rejection is respectfully traversed.

Initially, Applicants note that Hynes discloses a frameless headclamp 2, which includes an articulated arm 38. The articulated arm 38 can include a third arm section comprising an externally threaded rod for receipt of a double chuck 54. The double chuck 54 includes two cavities 64, which receive a sliding fit ball collet 76. A sleeve 80 can be threaded into each ball collet 76. A computer probe 90 can be axially positioned in the sleeve 80. The computer probe 90 can include LEDs 94, which can be monitored by cameras 104. Once the ball collet 76 is properly aligned along the desired trajectory, the chuck 54 is secured to the anatomy, and the probe 90 can be removed to enable instruments to engage the anatomy. In contrast to Hynes, independent Claim 1 has been amended to recite:

at least one trackable marker associated with the plurality of cannulas, the at least one trackable marker mounted on a frame that is coupled to the fixture to enable an instrument location system to **detect a position of each of the plurality of cannulas throughout a surgical procedure...**(emphasis added).

Independent Claim 39 has been amended to recite:

a first fixture having a first configuration;
a second fixture **different from the first fixture** and having a second configuration;...

at least one trackable marker associated with the plurality of cannulas, the at least one trackable marker mounted on a frame, the frame operable to be coupled to the first fixture or the second fixture, wherein upon coupling the plurality of cannulas with the first fixture or the second fixture, the plurality of cannulas are positioned in at least

one of the first configuration or the second configuration, and the at least one trackable marker is detectable by an instrument location system to detect **the position of the plurality of cannulas relative to an anatomy in real-time** (emphasis added).

In view of the above, Applicants respectfully assert that the cited art does not teach, suggest or disclose each and every element of independent Claims 1 and 39. In this regard, Hynes does not teach, suggest or disclose at least one trackable marker associated with the plurality of cannulas, the at least one trackable marker mounted on a frame that is coupled to the fixture to enable an instrument location system to **detect a position of each of the plurality of cannulas throughout a surgical procedure**, as claimed in Claim 1, a second fixture **that is different from** a first fixture and has a second configuration, as claimed in Claim 39, or the at least one trackable marker mounted on a frame, the frame operable to be coupled to the first fixture or the second fixture, and the at least one trackable marker is detectable by an instrument location system to detect **the position of the plurality of cannulas relative to an anatomy in real-time**, as claimed in Claim 39. Rather, at best, Hynes discloses the use of a computer probe 90, which includes LEDs 94, to establish a trajectory through a sleeve 80, and then the removal of the computer probe 90. Once the computer probe 90 is removed, the position of the sleeve 80 can no longer be detected by the computer 102 of Hynes, and thus, the system of Hynes does not teach, suggest or disclose the use of an instrument location system to detect a position of each of the plurality of cannulas throughout a surgical procedure, as claimed in Claim 1, or an instrument location system to detect the position of the plurality of cannulas relative to an anatomy in real-time, as claimed in Claim 39.

In addition, Applicants note that it would be improper to modify Hynes to include an instrument location system that can detect the position of each of the plurality of cannulas throughout the surgical procedure, or an instrument location system that can detect the position of each of the plurality of cannulas in real-time as it would improperly change the principle of operation of Hynes. MPEP 2143.01. In this regard, the use of an instrument location system to determine a location of each of a plurality of cannulas throughout a surgical procedure or in real-time would require the use of the computer probe 90 throughout the procedure, thereby prohibiting the insertion of the drill 116 into the sleeve 80 occupied by the computer probe 90, which impermissibly changes the principle of operation outlined by Hynes.

With further regard to Claim 39, Applicants assert that Hynes does not teach, suggest or disclose a first fixture having a first configuration and a second fixture that is different from the first fixture and having a second configuration. Rather, at best, Hynes discloses the use of three arm sections and a double chuck 54, with the double chuck 54 being threaded onto an end of the third arm section. Hynes does not disclose multiple fixtures for engagement with the third arm section, but rather only the use of the double chuck 54. Even if the Office is correct in stating that the multiple arms allow for multiple configurations, the double chuck 54 is the only fixture disclosed in Hynes. Thus, as Hynes fails to teach, suggest or disclose a first fixture and a second fixture that is different from the first fixture, Hynes further does not teach, suggest or disclose each and every element of Claim 39.

Accordingly, in view of at least the above discussion, Applicants respectfully submit that the cited art does not teach, suggest or disclose each and every element of

independent Claims 1 and 39, and thus, Applicants respectfully request the Office to reconsider and withdraw the rejection of independent Claims 1 and 39 under 35 U.S.C. § 103(a).

In addition, since Claims 3-17, 40-45 and 47 depend directly or indirectly from independent Claims 1 or 39, Claims 3-17, 40-45 and 47 should be in condition for allowance for at least the reasons set forth for Claims 1 and 39 above. In addition, at least dependent Claim 9 is believed to have independently allowable subject matter, as Hynes does not teach, suggest or disclose that the fixture is interchangeable. Rather, as discussed, Hynes discloses the use of only one fixture with the third arm section. Accordingly, Applicants respectfully request the Office reconsider and withdraw the rejections of Claims 3-17, 40-45 and 47 under 35 U.S.C. § 103(a).

Claims 18-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hynes as applied to Claim 2 above, and further in view of Jacobson (U.S. Patent No. 5,665,095; hereinafter "Jacobson"). This rejection is respectfully traversed.

Applicants note that Claim 18 has been canceled and Claim 19 depends from independent Claim 1. Since Claim 19 depends directly from independent Claim 1, Claim 19 should be in condition for allowance for at least the reasons set forth for Claim 1 above. In addition, Applicants note that it is improper to modify Hynes to include a dovetail connection to attach a frame that includes at least one trackable marker. In this regard, Hynes teaches the use of the probe 90 with the LEDs 94, which is inserted through a sleeve 80 of a ball collet 76 to enable the fine adjustment and manipulation of the probe 90. The probe 90 can then be removed to enable instruments to pass

through the sleeve 80 along the desired trajectory. To modify Hynes to have the probe 90 attached via a dovetail connection would impermissibly change the principle of operation of Hynes, and thus, Applicants respectfully submit this rejection is improper. Accordingly, Applicants respectfully request the Office reconsider and withdraw the rejections of Claim 19 under 35 U.S.C. § 103(a).

NEW CLAIMS

Claims 48-52 are new. Support for these claims can be found through the specification, drawings and claims as originally filed, and in at least p. 6, 10-12 and 14-15; Figs. 1-7, and thus, Applicants respectfully submit that no new matter has been added, via these claims. Applicants also respectfully submit that new Claims 48-52 are directed towards the elected subject matter. In addition, Applicants respectfully assert that Claim 48 is patentable and in condition for allowance as the cited art does not teach, suggest or disclose a plurality of trackable markers coupled to the fixture, a surgical navigation system that tracks the plurality of trackable markers to determine a position of each of the plurality of cannulas relative to an anatomy, or a display that displays an icon representative of the position of each of the plurality of cannulas superimposed onto an image of the anatomy. Applicants also submit Claims 49 and 50 are patentable and in condition for allowance, as these claims depend directly or indirectly from new Claim 48, which is believed to be patentable and in condition for allowance. New Claim 51 is also believed to be patentable and in condition for allowance as the cited art does not teach, suggest or disclose, as discussed, that the fixture is interchangeable. Further, Claim 52 is believed to be in condition for allowance, as the cited art does not teach,

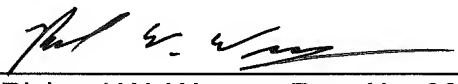
suggest or disclose a display that displays an icon representative of the position of each of the plurality of cannulas overlaid onto an image of the anatomy. Prompt and favorable consideration of Claims 48-52 is hereby respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By: 
Richard W. Warner, Reg. No. 38,043
Erica K. Schaefer, Reg. No. 55,861

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

RWW/EKS/chs